

I CAN LOWER MY RISK FOR

TYPE 2 DIABETES



A Guide for American Indians



U.S. Department
of Health and
Human Services

NATIONAL INSTITUTES OF HEALTH

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DIABETES AND DIGESTIVE
AND KIDNEY DISEASES

National Diabetes Information Clearinghouse

Research Gives Hope Diabetes Can Be Prevented

Although people with diabetes can prevent or delay complications by keeping blood glucose (also called blood sugar) levels close to normal, preventing or delaying the development of type 2 diabetes in the first place is even better. The results of a major federally funded study, the Diabetes Prevention Program (DPP), prove that we can prevent or delay the disease. This study of 3,234 people at high risk for diabetes showed that moderate diet and exercise, resulting in a 5- to 7-percent weight loss, can delay and possibly prevent type 2 diabetes. More than 170 American Indians participated in the DPP.

The DPP tested three approaches to preventing diabetes: making lifestyle changes, taking a diabetes pill, or following the standard diabetes education approach. People in the lifestyle change group exercised about 30 minutes a day, 5 days a week, usually by walking, and they lowered their intake of fat and calories. Those who took the diabetes pill metformin received standard information on exercise and diet, as is done in an Indian Health Service clinic or tribal physician's office. These approaches were compared with the third group who only received the standard information on exercise and diet and took a placebo—a pill without medicine in it.

The DPP results showed that people in the lifestyle change group reduced their risk of getting type 2 diabetes by 58 percent. Average weight loss in the first year of the study was 15 pounds. Lifestyle change was even more effective in those 60 years and older. They reduced their risk by 71 percent. People who took metformin and received standard information on exercise and diet reduced their risk by 31 percent.



"After I started exercising and watching what I eat, my blood glucose levels returned to normal."

The Diabetes Prevention Program Outcomes Study (DPPOS) has continued to follow most DPP participants since the DPP ended in 2001. The DPPOS has shown that the benefits of weight loss and metformin last for at least 10 years. Ten years after they enrolled in the DPP, people in the lifestyle change group had reduced their risk for developing diabetes by 34 percent. Those in the lifestyle change group age 60 or older had reduced their risk of developing diabetes by 49 percent.

Participants in the lifestyle change group also had fewer heart and blood vessel disease risk factors, including lower blood pressure and triglyceride levels, even though they took fewer drugs to control their heart disease risk. The metformin group had reduced their risk of developing diabetes by 18 percent. Even though controlling your weight with lifestyle changes is challenging, it produces long-term health rewards by lowering your risk for type 2 diabetes, lowering your blood glucose levels, and reducing other risk factors for heart disease.



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What is diabetes?

Diabetes causes blood glucose levels to be above normal. People with diabetes have problems converting food to energy. After food is eaten, it is broken down into a sugar called glucose. Glucose is then carried by the blood to cells throughout the body. The hormone insulin, made in the pancreas, helps the body change blood glucose into energy. People with diabetes, however, either no longer make enough insulin, or their insulin doesn't work properly, or both.

Type 2 diabetes

Type 2 diabetes is the most common type in American Indians. This type of diabetes can occur at any age, even during childhood. People develop type 2 diabetes because the cells in the muscles, liver, and fat do not use insulin properly. Eventually, the body cannot make enough insulin. As a result, the amount of glucose in the blood increases while the cells are starved of energy. Over time, high blood glucose damages nerves and blood vessels, leading to problems such as heart disease, stroke, blindness, kidney failure, and amputation.

Other kinds of diabetes

Type 1 diabetes

Type 1 diabetes is rare in American Indians. People develop type 1 diabetes when their bodies no longer make any insulin. Type 1 is usually first diagnosed in children or young adults but can develop at any age.

Gestational diabetes

Gestational diabetes is first diagnosed during pregnancy. It occurs when the body doesn't use insulin properly. Having an American Indian family background raises the risk of developing gestational diabetes. Although this form of diabetes usually goes away after the baby is born, a woman who has had it is more likely to develop type 2 diabetes later in life.

What are the signs and symptoms of type 2 diabetes?

Many people have no visible signs or symptoms of diabetes. Symptoms can also be so mild that you might not notice them. More than 5 million people in the United States have type 2 diabetes and do not know it.

Look for

- increased thirst
- increased hunger
- fatigue
- increased urination, especially at night
- unexplained weight loss
- blurred vision
- sores that do not heal

What does pre-diabetes mean?

Pre-diabetes means your blood glucose is higher than normal but not high enough for a diagnosis of diabetes. Having pre-diabetes also means you're at risk for getting type 2 diabetes and heart disease. There are no visible symptoms of pre-diabetes. However, you can reduce the risk of getting diabetes and even return blood glucose levels to normal with modest weight loss through healthy eating and moderate physical activity.



What factors increase my risk for type 2 diabetes?

If you have certain conditions, you're more likely to develop type 2 diabetes. The more of these conditions you have, the higher your risk. Check each item that is true for you. Then show this list to your health care provider.

- ☐ My mother had diabetes when I was born.
- ☐ I am overweight.
- ☐ I have a parent, brother, or sister with diabetes.
- ☐ My family background is American Indian.
- ☐ I have had gestational diabetes, or I gave birth to at least one baby weighing more than 9 pounds.
- ☐ My blood pressure is 140/90 mmHg or higher, or I have been told that I have high blood pressure.
- ☐ My cholesterol levels are higher than normal. My HDL cholesterol—"good" cholesterol—is below 35 mg/dL, or my triglyceride level is above 250 mg/dL.
- ☐ I am fairly inactive. I exercise fewer than three times a week.



"I didn't know I had diabetes until I had a blood test at the clinic."

Should I be tested for diabetes?

Anyone 45 years of age or older should consider getting tested for diabetes. If you are 45 or older and overweight, getting tested is strongly recommended. Ask your health care provider for an A1C test, a fasting blood glucose test, or an oral glucose tolerance test. Your health care provider will tell you if you have normal blood glucose, pre-diabetes, or diabetes. If you are told you have pre-diabetes, have your blood glucose checked again in 1 year.

How can I lower my risk for diabetes?

You can do a lot to lower your risk. The small steps you take can lead to big rewards.

- Reach and maintain a reasonable body weight.
- Make wise food choices most of the time.
- Be physically active every day.
- Take your prescribed medicines.

Doing these things can reduce your risk of developing type 2 diabetes. Keeping your blood pressure and cholesterol on target also helps you stay healthy.



“My great grandmother told me to breastfeed my child so the baby would be healthy.”

If you are pregnant, plan to breastfeed your baby. Ask your health care provider for the names of people to call for help learning to breastfeed. Besides being good for your baby, breastfeeding is good for you. Studies done with the help of Pima Indian volunteers have shown that breastfeeding may lower the baby’s risk of becoming overweight and getting diabetes.

Getting Started

Making changes in your life such as eating less can be hard. You can make the changes easier by taking these steps:

- Make a plan to change something that you do.
- Decide exactly what you will do and when you will do it.
- Plan what you need to get ready.
- Think about what might prevent you from reaching your goal.
- Find family and friends who will support and encourage you.
- Decide how you will reward yourself—with a nonfood item or activity—when you do what you have planned.

Your health care provider, a registered dietitian, or a counselor can help you make a plan.

Reach and Maintain a Reasonable Body Weight

Your weight affects your health in many ways. Being overweight can keep your body from making and using insulin correctly. The extra weight may also cause high blood pressure. The DPP study showed that losing even a few pounds can help lower your risk of developing type 2 diabetes, because weight loss helps your body use insulin more effectively. Every pound you lose lowers your risk of getting diabetes. In the DPP, people who lost 5 to 7 percent of their body weight lowered their risk of developing type 2 diabetes. They had less than half the risk of developing diabetes as people who didn't make lifestyle changes. A 5- to 7-percent weight loss for a 150-pound person, for example, would be about 7 to 10 pounds. If you're overweight, choose sensible ways to lose weight.

- Don't use crash diets. Instead, eat smaller servings of the foods you usually have, and limit the amount of fat you eat.
- Increase your physical activity. Aim for at least 30 minutes of exercise most days of the week. Do something you enjoy, like biking or walking with a friend.
- Set a reasonable weight-loss goal, such as losing about a pound a week. Aim for a long-term goal of losing the number of pounds that's right for you.

Choosing My Weight Loss Goal

Losing 5 to 7 percent of your total weight can help lower your risk of getting type 2 diabetes. You are more likely to lose weight if

- you're physically active
- you cut down on fat and calories

Use these steps to choose a goal. Talk with your health care provider and your dietitian about your goal and how to reach it.

To find your weight loss goal for losing about 5 to 7 percent of your weight, find the weight closest to yours on the chart below. Follow the row across to see how many pounds you need to lose.

Your weight in pounds	5 percent loss in pounds*	7 percent loss in pounds**
150	8	11
175	9	12
200	10	14
225	11	16
250	13	18
275	14	19
300	15	21
325	16	23
350	18	25

**To find your exact weight loss goal in pounds for a 5 percent loss, multiply your weight by .05.*

***To find your exact weight loss goal in pounds for a 7 percent loss, multiply your weight by .07.*

continued

Write your weight loss goal here:

To lower my risk of getting type 2 diabetes, my goal is to lose about _____ pounds.

Write down what you will do to lose weight. **I will:**

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Choose a date to start your plan for losing weight and write it here:

Start date: _____

Look ahead to when you think you can meet your goal. Allow about a week for each pound or half-pound you'd like to lose. Write the date for meeting your goal here:

End date: _____

Make Wise Food Choices Most of The Time

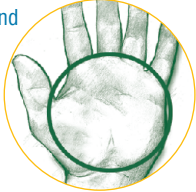
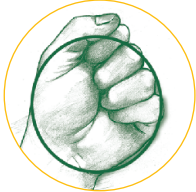
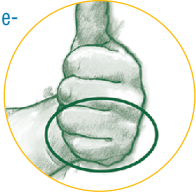

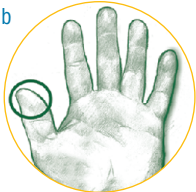

What you eat has a big impact on your health. By making wise food choices, you can help control your body weight, blood glucose, blood pressure, and cholesterol.

- Keep track of what you eat and drink. People who keep track are more successful in losing weight. You can use the Daily Food and Drink Tracker form on page 15 to write down what you eat and drink.
- Take a look at the serving sizes of the foods you eat. Reduce serving sizes of main courses, meat, desserts, and other foods high in fat. Increase the amount of fruits and vegetables at every meal. Page 9 provides a chart for choosing sensible serving sizes using your hand as a measuring guide. Because your hand is proportioned to the rest of your body, it can be used to measure a healthy serving size for your body. Remember, the chart is only a guide. Choose your serving sizes and foods wisely.
- Limit your fat intake to about 25 percent of your total calories. Your health care provider or dietitian can help you figure out how many grams of fat to have every day. You can check food labels for fat content. For example, if your food choices add up to about 2,000 calories a day, try to eat no more than 56 grams of fat. See page 10 for ways to lower the fat in your meals and snacks.
- Cut down on calories by eating smaller servings and by cutting back on fat. People in the DPP lifestyle change group lowered their daily calorie total by an average of about 450 calories. Your health care provider or dietitian can work with you to develop a meal plan that helps you lose weight.
- Choose healthy commodity foods (items provided by the government to help people consume a nutritious diet), including those lower in fat.
- When you meet your goal, reward yourself with something special, like a new outfit or a movie.



“Having fruit for dessert instead of sweets has helped me lose weight.”

Choose Sensible Serving Sizes

Amount of food	Types of food	Size of one serving (the same size as:)
3 ounces	meat, chicken, turkey, or fish	the palm of a hand or a deck of cards 
1 cup	cooked vegetables salads casseroles or stews, such as chili with beans milk	an average- sized fist 
1/2 cup	fruit or fruit juice starchy vegetables, such as potatoes or corn pinto beans and other dried beans rice or noodles cereal	half of an average- sized fist 
1 ounce	snack food	one handful 
1 Tablespoon	salad dressing	the tip of a thumb 
1 teaspoon	margarine	a fingertip 



Ways to Lower The Amount of Fat in Your Meals and Snacks

1 Choose lower-fat foods.

Example:

Instead of sunflower seeds (20 grams of fat), choose pretzels (1 gram).

Savings: 19 grams.

2 Use low-fat versions of foods.

Example:

Instead of regular margarine (5 grams of fat), use low-fat margarine (2 grams).

Savings: 3 grams.

3 Use low-fat seasonings.

Example:

Instead of putting butter and sour cream on your baked potato (20 grams of fat), have salsa (0 grams).

Savings: 20 grams.

4 Cook with less fat.

Example:

Instead of making fried chicken (31 grams of fat), roast or grill the chicken (9 grams).

Savings: 22 grams.

Remember that low-fat or fat-free products still contain calories. Be careful about how much you eat. In fact, some low-fat or fat-free products are high in calories. Check the food label.

Be Physically Active Every Day

Regular exercise tackles several risk factors at once. Activity helps you lose weight; keeps your blood glucose, blood pressure, and cholesterol under control; and helps your body use insulin. If you are not very active, start an exercise program slowly. Talk with your health care provider first about what kinds of exercise would be safe for you. Then make a plan to increase your regular physical activity.

- Keep track of what you do for exercise and how long you do it. Use the Daily Physical Activity Tracker form on page 16 to keep track of your physical activity.
- Aim for at least 30 minutes of physical activity a day most days of the week.
- Incorporate physical activity into plans with family and friends. Set a good example for your children. Play softball on weekends. Go on a family hike.
- Be active every day. For example, walk to the store, clean the house, or work in the garden, rather than watch TV.



"Walking makes me feel good."

Getting Started on a Walking Routine

Walking is a great way to be physically active. Before you get started, talk with your health care provider about whether it's OK for you to walk for exercise. Then get comfortable shoes that provide good support. You can use the chart on page 16 to start your routine gradually. Try to walk at least 5 times a week. Build up little by little to 30 minutes a day of brisk walking.



My Walking Program

Week number	Warm-up time (minutes)	Fast walk time (minutes)	Cool-down time (minutes)	Total (minutes)
	Walk slowly	Walk briskly	Walk slowly	
1	5	5	5	15
2	5	8	5	18
3	5	11	5	21
4	5	14	5	24
5	5	17	5	27
6	5	20	5	30
7	5	23	5	33
8	5	26	5	36
9+	5	30	5	40

Source: *Small Steps. Big Rewards. Your Game Plan for Preventing Type 2 Diabetes.* A publication of the National Diabetes Education Program.

Take Your Prescribed Medicines

Some people need medicines to help control their blood pressure or cholesterol levels. If you do, take your medicines as directed. Ask your doctor if you should take metformin to prevent type 2 diabetes. Metformin is a medicine that makes insulin work better and can reduce the risk of type 2 diabetes.

Hope through Research

With the help and participation of many Pima Indian volunteers over the years, scientists at the National Institutes of Health have been able to identify several ways health care providers can take better care of people with diabetes. We know keeping blood glucose, blood pressure, and blood cholesterol under control is very important. We know pregnant women with diabetes need to keep their blood glucose under control so their babies will be healthy and have a lower risk of getting diabetes. We know breastfeeding, even for a few weeks, helps protect babies from becoming overweight and developing diabetes.

We also know that many people who might otherwise develop type 2 diabetes can prevent it by exercising regularly, lowering the amount of fat and calories they eat, and losing weight. Researchers are also studying the genetic and environmental factors that can lead to pre-diabetes and diabetes. As they learn more about the events that lead to diabetes, researchers hope to develop more ways to prevent diabetes and take care of those who already have diabetes.

Participants in clinical trials can play a more active role in their own health care, gain access to new research treatments before they are widely available, and help others by contributing to medical research. For information about current studies, visit *www.ClinicalTrials.gov*.

Keeping Track

Daily Food and Drink Tracker

Use the form on page 15 to keep track of everything you eat and drink. Make a copy of the form for each day. Write down the time, the name of the food or drink, and how much you had. For a free booklet with information on fat grams and calories, call the National Diabetes Education Program at 1-888-693-NDEP (1-888-693-6337) and request a copy of the Game Plan Fat and Calorie Counter. Or view it online at www.ndep.nih.gov/diabetes/pubs/GP_FatCal.pdf.

SAMPLE

DATE <u>December 1, 2011</u>		DAILY FOOD AND DRINK TRACKER		
Time	Name	Amount	Fat Grams	Calories
8:00 am	<i>oatmeal</i>	<i>1/2 cup</i>	<i>1</i>	<i>80</i>
	<i>fat-free milk</i>	<i>1 cup</i>	<i>0</i>	<i>90</i>

Daily Physical Activity Tracker

Use the form on page 16 to keep track of your physical activity. Make a copy of the form for each day. Write down what you do and for how long.

SAMPLE

DATE <u>December 1, 2011</u>		DAILY PHYSICAL ACTIVITY TRACKER	
Type of Activity	Minutes		
<i>Walking</i>	<i>20</i>		
<i>Gardening</i>	<i>10</i>		

Daily Food and Drink Tracker

Daily Physical Activity Tracker

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This publication may contain information about medications. When prepared, this publication included the most current information available. For updates or for questions about any medications, contact the U.S. Food and Drug Administration toll-free at 1-888-INFO-FDA (1-888-463-6332) or visit www.fda.gov. Consult your health care provider for more information.

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